

# SURVEYING THE PERCEPTION OF HIGHER EDUCATION STUDENTS ON THE USEFULNESS OF LIVE LECTURE CAPTURE: PRELIMINARY RESULTS

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## Abstract

In recent years, we have started to implement an in-classroom Live Lecture Capture (LLC) methodology at selected modules of the Schools of Engineering of the University of Málaga, Spain. The arrival of the COVID-19 forced us to shift from in-classroom to online delivery of the class sessions. We report preliminary results from a survey of the perception of our students on the usefulness of live lecture capture in this shifting environment. The participants in the survey find the lecture recordings to be a useful tool that has helped them to better understand the concepts and ideas in the different subjects, and also to obtain better marks. Finally they consider that having access to the recordings had a significant impact on the general class attendance rates.

Keywords: Live Lecture Capture; Higher Education; Survey; Students Perception; COVID-19;

## 1 INTRODUCTION

The COVID-19 pandemic forced an unprecedented shift in how contents and learning activities had to be delivered in Higher Education. Due to the total lockdowns on the second part of the 2019/2020 academic year and the intermittent, partial lockdowns throughout the 2020/2021 one, traditional face-to-face teaching had to be replaced with online teaching activities.

Well before the pandemic, and unaware of the upcoming online teaching challenges that it would bring up, we, as a small group of teachers interested in video-teaching, had already developed a simplified in-classroom live lecture capture (LLC) method [1]. Its screen-casting nature helped us to avoid the technical difficulties involved in the live recording of in-classroom annotations on physical boards, by replacing them with live on-screen annotations.

On the other hand, due to the pandemic lockdown, the Schools of Engineering of the University of Malaga made a considerable effort to provide the necessary video/audio hardware setup to facilitate teachers to video-cast the in-classroom performance [2] [3]. Finally, the Virtual Teaching Support Unit of the University of Malaga has also made an important effort to provide software solutions for video-casting as, for example, the integration of the Blackboard Collaborate system with the Moodle Platform of the University.

From the beginning, our approach focused on not only being able to cast our teaching sessions but also to provide offline access to the recording [1] [2] [3]. This approach was welcomed by our students, who informally expressed their opinion on its usefulness.

To better understand the opinion of the students on the use of live lecture recordings, and in order to give all of them the chance to participate in the debate, we finally decided to make an open survey on the students' usage, impressions and suggestions about our teaching proposal: either face-to-face or online synchronous lectures supported with live captures that are asynchronously accessible right after every session. Our goal was to gain a better understanding of the perception of this group of students of the usefulness of the recorded lectures, not as a primary education source but as a complement to the synchronous lectures.

## 2 METHODOLOGY

The recording of the live lectures was performed during the academic year 2020/2021 on a variety of modules of Physics and Electronics at the School of Engineering (SE), School of Telecommunications Engineering (STE), and School of Computer Sciences (SCS) of the University of Malaga. Both in-situ and online delivered synchronous class sessions were routinely recorded using the Blackboard Collaborate system integrated into the Moodle Platform of the University.

The survey was made at the beginning of the following academic year, 2021-2022, among the students that were still formally enrolled on the different modules. Table 1 summarizes the name of the module and their respective "surveys participation rates", defined as the ratio of students that answered the questionnaire.

*Table 1. Student's survey participation rate by module*

Module	School	Semester	Participation	Participation rate	Label
Physics	STE	1	38/190	20.0%	STE-P
Physics	SCS	1	36/160	22.5%	SCS-P
Electronic Technology	STE	2	9/67	13.4%	STE-TE
Physics	SE	1	14/240	6.1%	SE-P

## 3 RESULTS

Students were asked to answer a survey of seven questions regarding general and specific feedback about LLC practice. Results are presented in a graphical form in Figs. 1 to 7.

### 3.1. 1st question: access frequency

How frequently did you access recorded lectures? [weekly or more often; monthly; only occasionally, to solve specific doubts along the semester; exceptionally, just to prepare the final tests]

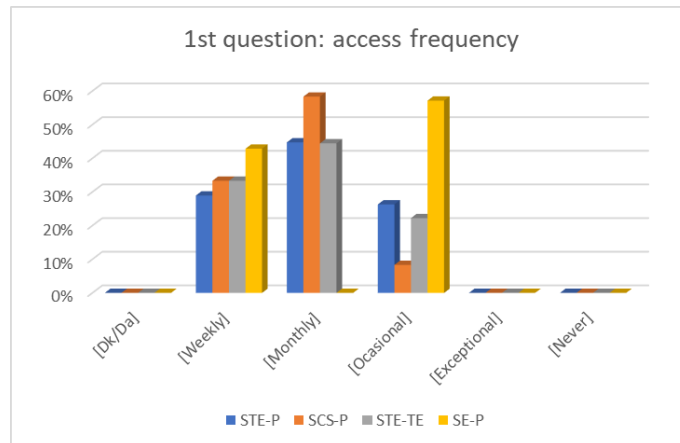


Figure 1. 1st question: access frequency

About 70% of the participants/respondents have consulted the videos with a frequency between monthly and weekly, or greater. All respondents have used videos to prepare, at least, partial exams.

### 3.2. 2nd question: usefulness

Did you find it useful having all recorded live lectures available for you to review at home? [1- Not useful at all; 5- very useful]

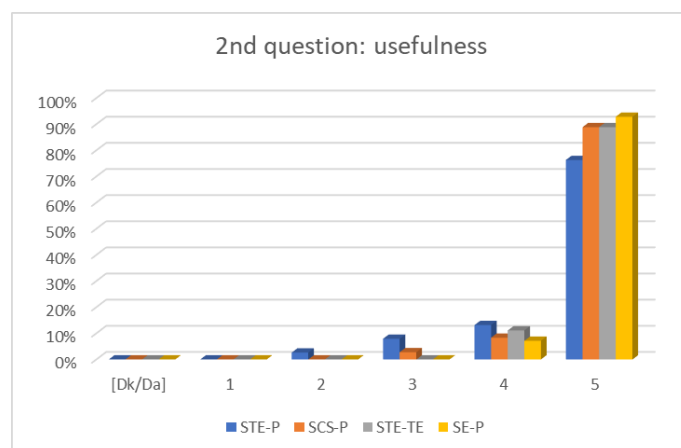


Figure 2. 2nd question: usefulness (1- low, 5 high)

Almost all of the participants/respondents consider that the recordings are useful to reinforce learning in the subject, and over 95% of the participants consider it a lot [4] or very useful [5].

### 3.3. 3rd question: influence on personal learning

Do you think that your use of video recorded material has improved your learning process in this subject? [1- absolutely not; 5- very useful]

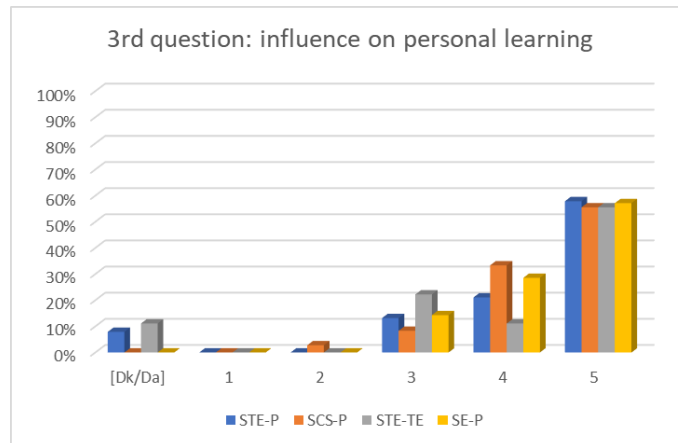


Figure 3. 3rd question: influence on personal learning (1- low, 5 high)

More than 90% of the participants/respondents consider that the recordings have been useful [3-4-5] to reinforce their personal learning in the subject. In particular, about 80% of the participants consider they have been quite useful [4] or very useful [5] to reinforce their personal learning in the subject.

### 3.4. 4th question: influence on achieved marks

Do you think that your use of video recorded material has improved your marks and has helped you to pass this subject? [1- absolutely not; 5- very useful]

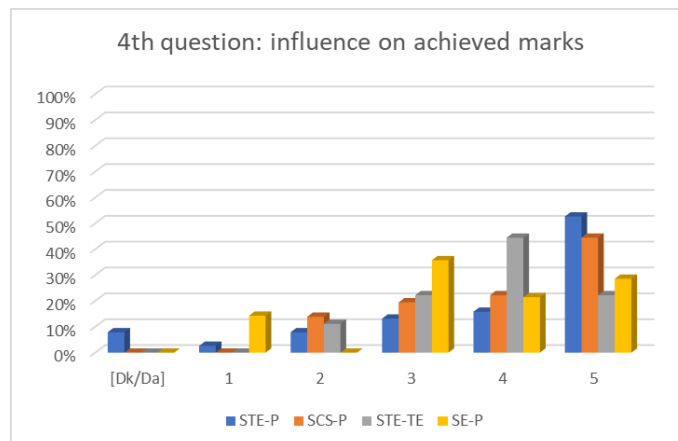


Figure 4. 4th question: influence on achieved marks (1- low, 5 high)

More than 80% of the participants/respondents consider that the recordings have been useful [3-4-5] to pass the subject. About 60% of the participants consider them to have been quite useful [4] or very useful [5] to pass the subject.

### 3.5. 5th question: negative influence on attendance, individual

Do you think that as a result of recorded LLC availability you have attended less frequently to live sessions? [1- absolutely not; 5- quite a lot]

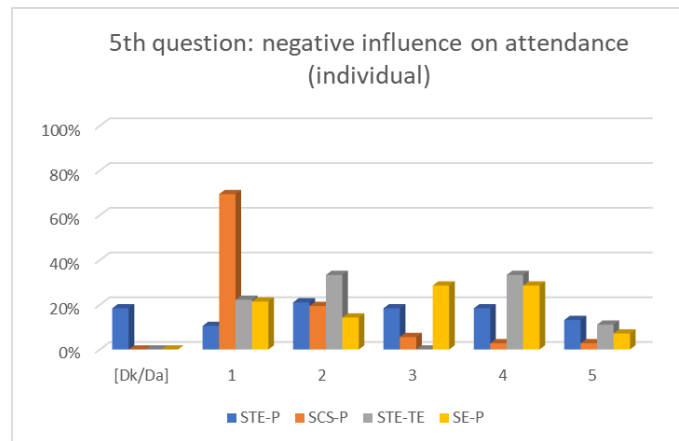


Figure 5. 5th question: negative influence on attendance, individual (1- low, 5 high)

There is little unanimity among participants on the influence that the availability of recordings has had on their own personal attendance at synchronous sessions. Approximately 50% of participants consider that they have had it, even quite a lot (~10%) or a lot (~20%) influence. On the other hand, another 20% consider that it has had little influence, and approximately 30% consider that it has had very little or perhaps no influence, since they have not answered the question.

### 3.6. 6th question: negative influence on attendance, individual judgement over the group

Do you think that as a result of recorded LLC availability your fellow classmates have attended less frequently to live sessions? [1- absolutely not; 5- quite a lot]

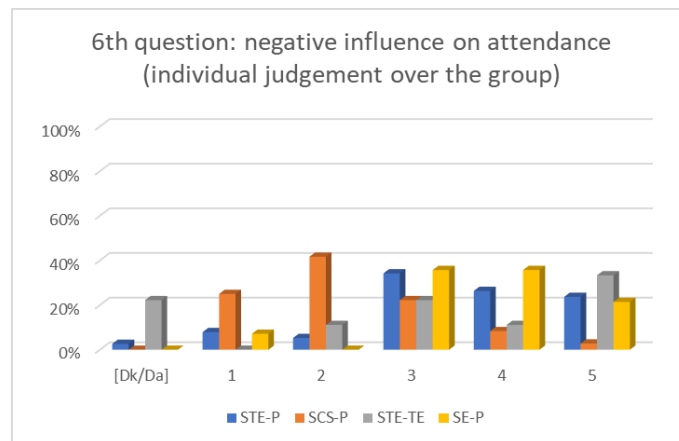


Figure 6. 6th question: negative influence on attendance, individual judgement over the group (1- low, 5 high)

Here there are less differences than in the answer to the 5th question: 70% believe that the availability of the recordings has had an appreciable negative influence on the group's attendance at the synchronous sessions [3-4-5], including 40% who consider that it has had enough or a lot of influence [4-5].

### 3.7. 7th question Video recording availability in other modules

In other modules of the same grade, did you have live lecture recordings or video lessons available for your use? Answers in bins of 20% wide.

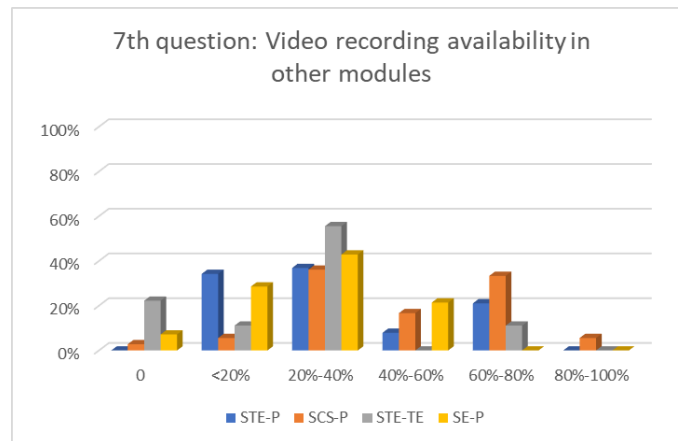


Figure 7. 7th question: Video recording availability in other modules

Around 70% of the participants report that less than 40% of the subjects they have taken have made available recordings of the synchronous class sessions. Although, interestingly, 20% of participants report that between 60% and 80% of their subjects have used this resource.

### 3.8. Selected comments from the students

Students were invited to optionally add a personal comment or impression at the end of the survey. Herewith we transcript some of them:

- [...] congratulations for having implemented the sessions recording, they were really useful.
- [...] it may become a double-edged sword if the student does not use it properly, as it may discourage class attendance.
- [...]it was useful to help me self-clarify missing concepts the very same day the synchronous session was delivered, but it was also useful to autonomously review more general concepts just before the exams.
- [...] I have a job and need to combine studies with work. The sessions recordings have helped me to better organize my time: I usually reserved one day of the week to catch up with the module. It is also quite interesting that if one does not understand some point, you can review it multiple times.
- [...] they are quite useful to review specific items in case I have any doubts. And they serve as a help if, for whatever reason I couldn't attend the class someday.
- [...] seems to me to be an excellent idea, however I must confess that it has negatively influenced my class attendance, especially to theory sessions.

## 4 CONCLUSIONS

Most participants in the survey find the lecture recordings to be a useful tool. They inform that they mainly review the recorded lectures to make up for missed lectures, to review some key concepts, and to prepare for exams. They have the perception that the reviewing of the recorded lectures has helped them to better understand the concepts and ideas explained in the synchronous sessions of the different subjects. A majority of them also think that using and reviewing the recordings has also helped them to obtain better marks in their exams.

In general terms, the participants consider that being able to review the lectures has not had a big impact on their personal assistance to the synchronous sessions. However, they feel that it has had a significant impact on the assistance of the students, as a whole.

Finally, we asked the students if other modules they had attended were using similar methods, also recording the synchronous sessions. We found that, in general, less than 40% of the modules were using this tool.

## ACKNOWLEDGEMENTS

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